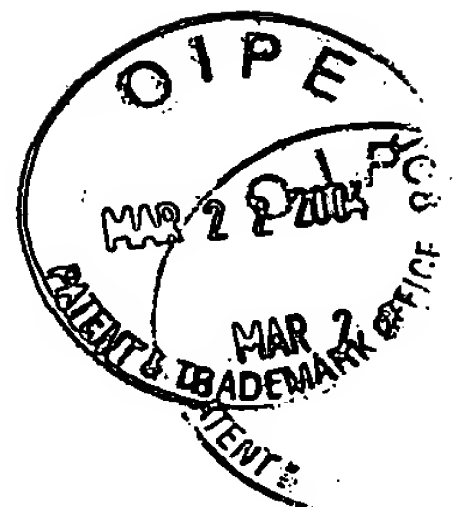




Cyclin D2 promoter, (SEQ ID NO:105) MSP primers
Accn. No. U47284 Promoter region analyzed: -1616 to -1394 bp

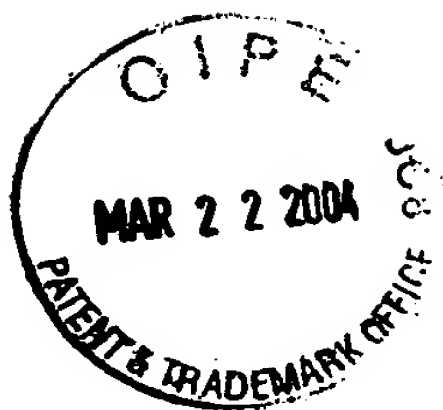
1 gagctCGagc caCGcccatgc cCGctgcaCG tgccagcttg CGcagcacat cagggCGctg
61 gtctctccc ttctctctgg agtgaataac accaaagggc GCGgtggggg tggggggtga
121 CGggaggaag gaggtgaaga aaCGccacca gatCGtatct cctgtaaaga cagccttgac
181 tcaaggatGC GttagagcaC Gtgtcagggc CGacCGtgct ggCGgacttc acCGcagtCG
241 gctcccagg agaaagcctg gcagagtgaG GCGGaaacC GgagggCGg CGaggatgCG
301 ggCGaaggac CGagCGtgga ggcctcatgc ctCGgggaa aggaaggggt ggtggtgtt
361 gCGcagggg agCGagggg agcCGgacct aatccctcac tCGccccctc cccctccCGg
421 gccatttctt agaaagctgc atCGgtgtg ccaCGctcag CGcagacacc tCGggCGgct
481 tgtcagcaga tgcaggggCG aggaagCGgg ttttctctgC GtggCGctg ggCGggggaa
541 cCGctgggag ccctgccccC GgcctgCGgC Ggccctagac GctgcacCGC GtCGccccac
601 gggcccCGaa gagccccag aaacaCGatg gtttctgctC Gaggatcaca ttctatccct
661 ccagagaagc acccccttc ctctctaata cccaccttc cctccctctt ctctctctgc
721 acacactctg cagggggggg cagaagggaC Gttgttctg tccctttaat CGgggctttc
781 gaaacagctt CGaagtatc aggaacacag acttcagga catgacctt atctctgggt
841 atgCGagggt gctattttct aaaatcacc cctcccttat tttcactta agggacctat
901 ttctaaattg tctgaggta ccccatctc agataatcta cctacattc ctggtatcta
961 aatacaagg caggaggatt aggatCGtt ttgaagaagc caagtggga gggCGtatt
1021 ttggCGtgct acacctacag aatgagtga attagaggc agaaatagga gtCGgtagtt
1081 ttttgtgggt tgcctgtcCG gggcccttg catgcaggct ggatggagg agaggggtgg
1141 ggggtggCGg gggacCGCGt ttgaagtgg gtCGggccag ctgctgttct ccttaataac
1201 gagaggggaa aaggaggag gaggggag attgaaagga ggaggggagg acCGggaggg
1261 gaggaaggg gagagggaac cagagCGggg aggCGCGgg agagggagga gagctaactg
1321 ccagccagc ttgCGtcacC GcttcagagC GgagaagagC Gaggagggga gagCGagacc
1381 agttttaagg ggaggacCGg tgCGagtga gaccccCGa ggctctgtcC Gccaccacc
1441 caatcctCGc ctcccttctg ctccacctc tctcttgc ctcaccttc cccCGaaaaac
1501 cccctattta gccaaaggaa ggaggtcagg gaaCGctct cccctccct tccaaaaaac
1561 aaaaacagaa aaacctttt ccaggcCGg gaaagcagga gggagagggg cCGcCGggct
1621 ggcctatcgag

FIG. 1A



MSP Unmethylated	223	BP	
GT TATGTTATGT	TTGTTGTATG		Forward UM 22 BP MT 56 (SEQ ID NO:21)
T AAAATCCACC	AACACAATCA		Reverse UM 21 BP MT 56 (SEQ ID NO:22)
MSP METHYLATED	276	BP	
TAC GTGTTAGGGT	CGATCG		F M 19 BP MT 58 (SEQ ID NO:23)
CGA AATATCTACG	CTAAACG		R M 20 BP MT56 (SEQ ID NO:24)

FIG. 1B



Twist Promoter: Accn No. AC003986 (SEQ ID NO:106)
Promoter Region analyzed: nts -51145 TO -51750

1 cattggactg ggtttccttc cacCGaagag tgaacttctg cctctttCGa gcaccttcCG
61 aggCGtagtc ctttgatgt tggggagCGt cagactgggt CGttgtagag gggaaaggag
121 gggccagaag ggCGagagag caggcCGgga CGcaaatcct cagccccCGC GgCGCGccac
181 Gtcttcagaa aCGccaggac ctCGgggctg ggcCGcCGCG gtttgccctt tggaactcaa
241 gggttCGtct acctgacct tgggtggctc CGCGgttgac acttttcttg gcatgcccc
301 ccacccCGCG ccacaccacc ccccagccc cagcaatcca aatCGgcccc aCGgacctag
361 agggctcttg ggCGagatga gacatcaccc actgtgtaga agctgttgcc attgtgctg
421 tcacagccacG tCGgatggg gctgccacCG tggccaggac agtctctcCG GacCGcttcc
481 tgggctgCGc tagggtCGg gggCGctgccc CGcaCGctcCG GgCGgggaag gaaatCGccc
541 CGCGccCGCC GgaggaaggC GaCGgggagg gaagggggag ggcCGctagg aggcGGgtgg
601 aggggcCGgc CGccCGggcc aggtCGtttt tgaatggttt gggagggaCGa attgttagac
661 ccCGagggaag ggaggtggga CGggggaggg ggactggaaa gCGgaaactt tcctataaaa
721 ctCGaaaaag tccctcctcc tcaCGtcagg ccaatgacac tgctgcccc aaactttcCG
781 cctgcaCGga ggtataagag cctccaagtc tgcagctctC Gccdaactcc cagacacctc
841 gCGggctctg cagcacCGgc aCGtttcca ggaggcctgg CGgggtgtgC GtccagcCGt
901 tgggCGcttt ctttttggga cctCGgggcc atccacacCG tccccctccc ctccCGcctc
961 cctcccCGcc tccccCGCGC GccctcccCG CGgaggtccc tccCGtcCGt cctcctgctc
1021 tctcctcCGC GggcCGcatC GccCGggcCG gCGcCGCGcCG Gggggggaagc tggCGggctg
1081 aggCGccccCG ctcttctcct ctgcccCGgg ccCGCGaggc caCGCGtCGc CGctCGagag
1141 atcatgcagg aCGtgtccag ctCGccagtc tCGcCGgccc aCGacagcct gagcaacagc
1201 gaggaagagc cagacCGgca gcagcCGcCG agCGgcaagC GCGggggaCG caagCGgCGc
1261 aCGagcaggC GcaCGgCGgg CGgCGgCGCG gggccCGgCG gagCGgggtgg gggCGtCGga
1321 ggCGgCGaCG agcCGggcag ccCGggcccag ggcaagCGCG gcaagaagtc tgCGggctgt
1381 ggCGgCGgCG gCGgCGCGgg CGgCGgCGgC Ggcagcagca gCGgCGgCGg gagtCGcag
1441 tcttaCGagg agctgcagac GcagCGggtc atggccaaCG tgCGggagCG ccagCGcacc
1501 cagtCGctga aCGaggCGtt CGcCGGctg CGgaagatca tccccCGct gccctCGgac

FIG. 2A



(SEQ ID NO:106 (Con't))

1561 aagctgagca agattcagac cctcaagctg gCGgcccaggt acatCGactt cctctaccag
1621 gtctccaga gCGaCGagct ggactccaag atggcaagct gcagctatgt ggctcaCGag
1681 CGgctcagct aCGccttctC Ggtctggagg atggaggggg cctggtccat gtcCGCGtcc
1741 caCtaCaggg CGgagcccc caccctca gcagggcCGg agacCtaggt aaggacCGCG

FIG. 2B

Unmethylated 193 BP

tt TGgatggggt tgttatTGT

FUM (3) 21 BP AT 58 (SEQ ID NO:107)

c ctaaccCAaa CAacCAacc

RUM (3) 20 BP AT 60 (SEQ ID NO:108)

Methylated 200 BP

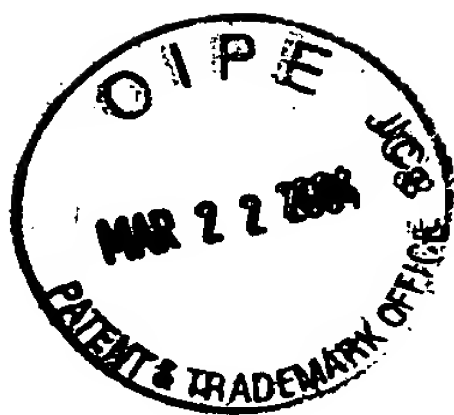
t ttCGgatggg gttgttatC

FM (5) 20 BP AT 58 (SEQ ID NO:109)

aaacCGac ctaaccCGaa CG

RM (4) 19 BP AT 58 (SEQ ID NO:110)

FIG. 2C



RAR beta promoter, MSP primers ACCN NO. AF157483 (SEQ ID NO:91)
Promoter region analyzed: nt -196 to nt -357

```
1  gtgacagaag tagtaggaag tgagctgttc agaggcagga gggctctattc ttgccaaag
   61  gggggaccag aattcccat gCGagctgtt tgaggactgg gatgCCGaga aCGGagCGa
  121  tCCGagcagg gtttgtctgg gcacCGtCGg ggtaggatCC GgaaCGcatt CGgaaggcctt
  181  tttgcaagca tttacttggg aggagaactt gggatctttc tgggaacccc CCGccccCGgc
  241  tggattggcC Gagcaagcct ggaaaatgca attgaaacac agagcaccag ctctgaggaa
  301  ctCGtcccaa gccccccatc tccacttcct cccctCGag tgtacaaacc ctgcttCGtc
  361  tgccaggaca aatcatcagg gtaccactat ggggtcagCG cctgtgaggg atgtaagggc
  421  tttttcCGca gaagtattca gaagaat[C] atttacactt gtcacCGaga taagaactgt
  481  gttattaata aagtcaccag gaatCGatgc caatactgtC Gactccagaa gtgctttgaa
  541  gtgggaatgt ccaagaatc tgtcaggaat gacaggaaac agaaaaagaa ggagacttCG
  601  aagcaagaat gcacagagag ctatgaaatg acagctgagt tggacGatct cacagagaag
  661  atcCGaaaag ctaccaggaa aactttccct tactctgcc agctgggtaa atacaccaCG
  721  aattccagtg ctgaccatCG agtcCGactg gacctgggc tctgggacaa attcagtga
  781  ctggccacca agtgcattat taagatCGtg gagtttgcta aaCGtctgcc tggtttcaact
  841  ggcttgacca tCGcagacca aattaccctg ctgaaggcCG cctgcctgga catcctgatt
  901  cttagaattt gcaccaggta taccacagaa caagacacca tgactttctc agaCGgcctt
  961  accctaaatC Gaactcagat gcacaatgct ggatttggtc ctctgactga ccttgtgttc
 1021  acccttgcca accagctcct gcctttggaa atggatgaca cagaaacagg ccttctcagt
 1081  gccatctgct taatctgtgg agacCGccag gaccttgagg aacCGacaaa agtagataag
 1141  ctacaagaac cattgctgga agcactaaa atttatatca gaaaaagaCG acccagcaag
 1201  cctcacatgt ttccaaagat cttaatgaaa atcacagatc tCGtagcat cagtgtctaaa
 1261  ggtgcagagC Gtgtaattac cttgaaaatg gaaattcctg gatcaatgcc acctctcatt
 1321  caagaaaatgc tggagaattc tgaaggacat gaacccttga cccaagtcc aagtgggaac
 1381  acagcagagc acagtcctag catctcacc agctcagtgg aaacagtgg ggtcagtcag
 1441  tcaccactCG tgcaataaga ca
```

FIG. 3A



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Unmethylated 163BP

ggattgg gatgtTGaga aTGT FUM 21 BP AT 60 (SEQ ID NO:92)

c Aaccaatcca acCAaaaCAa RUM 21 BP AT 60 (SEQ ID NO:93)

Methylated 142 BP

ga aCGCGagCGa ttCGagt FM (2) 19 BP AT 60

Gaccaatcca acCGaaaCG RM (2) 19 BP AT 58

FIG. 3B



Homo sapiens serine protease-like protease (nes1) mRNA, complete cds ACCESSION
AF024605 (SEQ ID NO:94)

```
1 accagcggca gaccacaggg agggcagagg cacgtctggg tccctccct ccttcctatc
61 ggcgactccc agatcctggc catgagagct ccgcacctcc acctctccgc cgcctctggc
121 gcccgggctc tggcgaaagt gctgccgctg ctgatgggc aactctgggc cgcagaggcg
181 gcgctgctcc ccaaaaacga cacgcgcttg gacccgaag cctatgggc cccgtgcgcg
241 cgcggctcgc agccctggca ggtctgctc ttcaacggcc tctcgtcca ctgcgcgggt
301 gtcctggtgg accagagttg ggtgctgacg gccgcgcat gcgaaacaa gccactgtgg
361 gctcgagtag gggatgatca cctgctgctt cttcaggggc agcagctccg ccggacgact
421 cgctctgttg tccatcccaa gtaccaccag ggctcaggcc ccacctgcc aaggcgaaacg
481 gatgagcacg atctcatgtt gctaaagctg gccaggccc tagtgccggg gccccgcgtc
541 cgggccctgc agcttcccta ccgctgtgct cagcccgag accagtgcc ggttgctggc
601 tggggcacca cgcctaaaga gtgtgaggtc ttctaccctg gcgtggtcac caacaacatg
661 actatcctga gactggaccg gggccaggac ccttgccaga gtgactctgg agggcccttg
721 atatgtgctg gactggaccg agaccctcca aggcctctc tcgtggggtg ttacccttg tggctctgcc
781 gtctgtgacg agaccctcca ctgtctacac ccagatctgc aaatacatgt cctggatcaa taaagtcata
841 cagcatccag ctgtctacac gatccagatg ctacgctcca gctgatccag atgttatgct cctgctgac
901 cgctccaaact gatccagatg gatccctccat cgtccatcct ctccctcccc agtcggctga actctcccct
961 cagatgcccc gaggtctccat ctgccgccct ccacacctct aaacatctcc cctctcacct
1021 tgtctgcact gttcaaacct ctgccgccct ttctctgcct gtactgaagc tgaatatgcag gaagtgggtg
1081 cattccccc cctatcccca ttctctgcct gccaggaaac cggtcatacac ccagcctctg agagcagtta
1141 caaagggtta ttccagagaa gccaaggaa gccaaggaa gccaaggaa gccaaggaa gccaaggaa
1201 ctgggggtcac ccaacctgac ttctctgccc actccccgct gtgtgacttt gggcaagcca
1261 agtggccctct ctgaacctca gtttctctcat ctgcaaaatg ggaacaatga cgtgcctacc
1321 tcttagacat gttgtgagga gactatgata taacatgtgt atgtaaatct tcatgtgatt
1381 gtcatgtaaag gcttaacaca gtgggtgggt agttctgact aaagggtacc tggtgtcgtg
1441 aaaaaaaaaa aaaa
```

FIG. 4A



Sequence analyzed: nts +169 to +349
Exon 3 sequence

(SEQ ID NO:95)
ccgcagaggc ggcgctgctc ccccaaaacg acaCGCgctt ggacccCGaa gcctatggCG cccCGtgCGC
GGCGGgctCG cagccctggc aggtctCGct cttcaacCGgc ctctCGttcc actgCGCGgg tgctctggtg gaccagagtt
gggtgctgac GgcCGCGcac TCGGgaaca a

FIG. 4B

Unmethylated 128 BP	Nes1 FUM 20 BP AT 56 (SEQ ID NO:77)
tTGtagaggT GgTGttgttt	
CACACaat aaaaCAaaaa acCA	Nes1 RUM 22 BP AT 56 (SEQ ID NO:78)
Methylated 137 BP	
ctCGaa gtttatggCG tttc	Nes 1 FM 20 BP AT 56 (SEQ ID NO:79)
t tatttccGca ataCGCGAC	Nes1 RM 20 BP AT 58 (SEQ ID NO: 80)

FIG. 4C



HOX A5 Promoter 3' to 5'

AC004080 (SEQ ID NO: 96)

16321 accaagagag actgggagag ggCGgcagag aagagagggg ggacCGagag cCGCGtcccc
16381 gCGgtCGCGt ggatttagaa aaaggctggc ttaccatga ctatgtgca gcttgCGcat
16441 ccaggggtag atctggggtt gggCGggCGg CGCGggctC GgctCGctct gCGcactCGc
16501 ctgctCGctg ctggcagggg CGtcctcctC GgctcCGgaC GcCGtgccaa cccctctct
16561 gctgctgatg tgggtgctgc CGgCGtCGgc CGaggCGcCG ctggagttgc ttagggagtt
16621 tttccCGcCG tgggtgctgt CGctgcCGg CGagggggc aCGgCGgagc agggcagCGg
16681 atCGggctga ggagagtGCG tggacGtggc CGgctggctg tacctgggct CGgCGggCGc
16741 CGCGctggCG ctggcagCGt agctgCGggC CGGctctcCG gagccaaagt ggcCGgagcc
16801 CGagCGgcCG aCGctgagat ccattgccatt gtagcCGtag cCGtacctgc CGgagtgcac
16861 gctCGcCGag tccctgaatt gctCGctcac Ggaactatga tctccataat tatgcaactg
16921 gtagtcCGgg ccatttgat agCGacCGca aatgagttt acaaaataag agctcatctg
16981 ttttttgata tgttgcttg atttggtgct CGCGgtCGtt tgtgCGtcta tagcaccctt
17041 gcacaattta tgatgaatta tggaaatgac tgggacatgt acttggttcc ctctaCGta
17101 ggcacccaaa tatggggtac GacttCGaat caCGtgctt ttgtgtccag tCGtaaatcc
17161 tgcctgatga cctctagagg taaactCGtg cactaatagg ggagtggtt ggaggCGagg
17221 ggggtggCGC GCGCGccCG ggcCGgtgcc CGCGccagt tgcCGcCGtt cagcCGgact
17281 CGagCGccac cCGctggagg cagggtcat CGccagctt cCGacCGggg gctgcaagg
17341 cCGgggtCGa attgaggtta cagcccatTA tggcaaaatt attgcatttc cctCGcagtt
17401 ccattaggat gtaccaattg ttaggcCGtc agctgcCGat CGCGCGccCG gCGaggatgc
17461 agaggattgg

FIG. 5A



Complement- 5' to 3' (SEQ ID NO:97) Promoter region analyzed: nts -97 to nts -303

ccaatcctct gcatcctCGc CGggCGCGCG atCGgcagct gaCGgcctaa caattggtac atcctaattgg
aactgCGagg gaaatgcaat aatttgcca taatgggctg taactcaat tCGacccCGg cccttgccagc
ccCGgtCGg aagctgggCG atgagccctg cctccagCGg gtggCGctCG agtcCGgctg aaCGgCGgca
actggCGgCG ggcaCGCGcc CGggCGCGCG CGccacccc.cctCGcctcc acccaactcc cctattagtg
caCGagttta cctctagagg tcatcaggcaggatttaCGa ctggacaaca aaagcaCGtg attCGaagtC
Gtaccaccata ttgggtgcctaCGtaggag ggaaccaagt acatgtcca gtcatttcca taattcatca
taaattgtgc aagggtgcta tagaCGcaca aaCGacCGCG agccacaaat caagcacaca
tatcaaaaacaatgagct cttattttgt aaactcattt tgCGgtCGct atccaaatgg ccCGgactac
cagttgcata attatggaga tcatagttcc GtgaTCgagc aattcaggga ctCGgCGgagc atgcactcCG
gcaggtaCGg ctaCGgctac aatggcatgg atctcagCGt CGgcCGctCG ggctcCGgcc actttggtct
CGgagagCGC gccCGcagct aCGctgccag CGccagCGCG gCGccCGcCG agccaggtta cagccagcCG
gcacCGtcca CGcactctcc tcagccCGat

FIG. 5B



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UnMethylated 213 BP	
<u>TTGGT</u> TGg aagttg ^g gTG	FUM 18 BP AT 56
gta <u>T</u> Gtg attTGAagttGtatt	
aataC AacttCAaat caCAtac	RUM 22 BP AT 56
Methylated 183 BP	
tttagcgg tggCGttcg	FM 18 BP AT 58
taCGatg attCGaagtcGtat	
ataC GacttCGaat caCGta	RM 20 BP AT 56

FIG. 5C



Sequencing 307 BP	
atattgttta taatgggttg taat	Hox A5 Seq. F 23 BP AT 56 (SEQ ID NO:73)
ggag ggaattaagt atatgtt	(SEQ ID NO:100)
aacatat acttaattcc ctcc	Hox A5 Seq.R 21 BP AT 56 (SEQ ID NO:74)
Expression 248 BP	
tcattt tgcggtcgct atcc	Hox Exp F 20 BP AT 60 (SEQ ID NO:75)
ccaggta cagccagccg gc	(SEQ ID NO:101)
gc cggctggctg tacctg	Hox Exp R 18 BP AT 62 (SEQ ID NO:76)

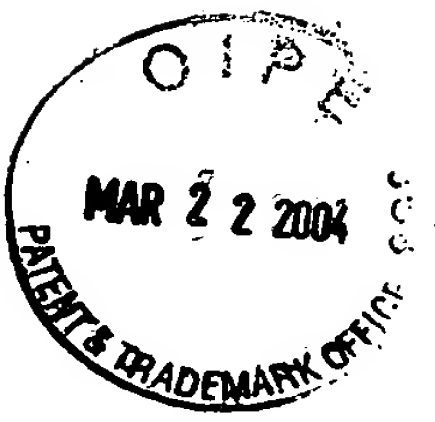
FIG. 5D



Homo sapiens 14-3-3 sigma protein promoter and gene, complete cds.
ACCESSION No. AF029081 (SEQ ID NO:102)

```
1  ggatcccagc ctgcccctcc acttctctcc caagccaggt cccggcatgg gtgggttatg
61  ctcatgctgg caatacttga aacgggttta ttaatgctgg gtattttgca caattttata
121 gacctctttt ctacatagtc ttttttaaat ggaaggagaa aatgtcagcc acattactgt
181 ctgtgtagtg ccagggtgaag ggttatcaga aggctggttg gtttaataa gtttattcca
241 agagaccttc tggctggaat gagtgagagt gtgtgtgcat gtgtgtgtgt gttcatgtgt
301 gccctgtatg aatgtggctg gctcccagat cccctgggct gccccctgcc ccatccccct
361 tgagtatcag aagcactctg agccaagggg acaggggggca cgtgcactgg tcacgagaaa
421 accctgggct cccactgggg ctccagcccag cctcctatct ttccttcttc tatggacttc
481 agacagccag tgtctgggga ctctgccact ctaccccag ccctaccac cagccccag
541 gtgaggcttc cagctgggac ctgccagac aggtgagcc tgggctggtt gggctgggtg
601 atggctctgg ggagcggctg ccctcctaca agccacccc cctcctctga gctctgaata
661 tgggacccag tgccaggagc tggaagacaa ggtgttctg ccaaacggga cctccatcca
721 gagaaaagga agaaggtgca ggggtgggcca agaggccaagt gaaggctggc ctgagctctgg
781 gccggaaact cagaggatgt ttctcctctg ctgggagctg tagtttctta tcaaaataga
841 tattgttcca ccatccccct ccttggccct tcaagtgggc tgaagccttg gaaagtgaca
901 taggaagtcc ccagatcttg cccttctcac tccagaggct agtggtcaca gacagctggg
961 aatggcagcc acagagggtc cctctggaga aacagcttca cccagcctc agggccctgg
1021 gcatactgc agtggccctg ggaggtgagg aagaagctgg ctagaggagg gggctccac
1081 ctaccttta ttaagccag tattctttgt tcctgcttgt aataaaactt cagtttataa
1141 gaggctgttt gctttgggtt ggttttttgt ttgctttcct ttgctgaggc cccaactggg
1201 agccctctgt tctttcagac aaatttggtt ctttcctggg gagactgtga gaaggcaggc
1261 agcccagtga tctggctaca ttttccctca cctggctgga gctctgtccg ctggaggaaag
1321 agcagagagg gctgcggctg agcccccatg ggcacgtgaa aagaggccat cctgtccccct
1381 ctttgtcccc tccaccttc cctgcctcag gggcttgag accccaaatt cttcttccct
1441 actgccttcc cactccgata cccaatgagt gccagctaa gaaaatgttt gagacagtag
1501 attccagttt gagagccgga gcttccctgg ctaccacctc caacctgggc accagggccc
1561 agccagacaa ctcataaacac tggcccacct ctctggtatc tccctcagga ggacacctgt
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FIG. 6A

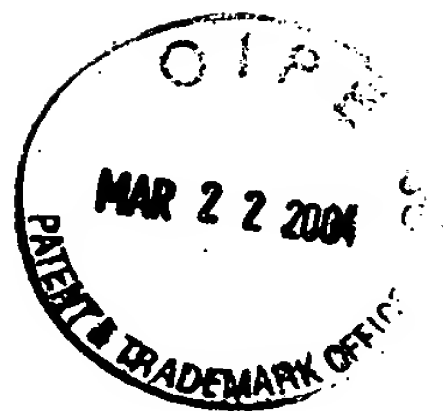


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(SEQ ID NO:102 (Con't))

1621 caggattttg ccattcctg cacagcctga gggagagctaa caggcctctt tgcagagggg
1681 tagctggtaa gaccgtttct tccctgtcgg ccagcactgc ccgctcccct ccacacacca
1741 tctcatcctc atcgcatgcc tcgccaacc catggagccc gtccatctgt ctggtgtgtg
1801 gtgcggtgtg tgtgctggtg gtggtagggt ctccaggac tcccgcctaa gcagaaggat
1861 cgggatatag ggcaaggcta aaagcccagc ccatttgtg actgaggaag tacgttcgcg
1921 cagagcagct ctccagctgg aagaggaggt ggagggtgag gctggggaga gcatggcgaa
1981 cctgccctga ggtgcttggg tctgtgctgg tggggtcctg gtatgcaggg gccaccggtc
2041 actaacactc ttatgtcctg gctttctgtc ccgctgagc ttctctcac ccgcccgttt
2101 tctctcctgc ttcatgtcct gctgcctaag ccttggcct tctctcggc agaggcaggt
2161 gctgtggcag cactctccc caccacggg cccctgcagg ccgctcccct cctcccaggc
2221 ctgctaacc tctctcttct ccttcttgc tgcctgccc gggatctcca gtgtgtgcgg
2281 gggcttaagg acctcctgag gaccgctgct ctctgcctct ccaggaatgg cctgggggga
2341 gccaggcacc cgcacctcc acctgcctaa cctgtggccc atctgccacc atctgtgcct
2401 acagggtctg cccccagcc tggccggcct gtgtgctctc taggacccca tagggggcag
2461 gggctggcct ctttgcccca tcccgcctcc atgccggcca gagtgtagaa agccataacg
2521 cacgcagcca tcagcacaat aatgtgactc tacgctgata tgctccctct ctcctccact
2581 gacttcccct tcccgattt gtgaggtgtc aagactagga atctggcctt agagcctgcc
2641 cctccacccc ctcagatcag gcataggcat agtcaagccc agcaggtttc ctcaggagct
2701 gtctggggtg ttgatgggtg atgacgctgc tgaacaaagt tggtgactgt tctaagcaca
2761 actggcttga tactgttccc acggcctgtc cactcccac cccaaccct ccaccagagt
2821 aggtaggatg tagggagggt gcgtgccgc tttgctctag gcactgagg accaagctag
2881 ccgtgcacag ccccatcac ttcaggggcg taaaggaaag agctgagcca aggaaatca
2941 gctgagccca gggctggggg ctgcttgtct gctatcctgt acctttttt ttttaacca
3001 aaataaagat tcccctcttc ttgccatacc attggctgtc tgggtggcgcc ttactttgg
3061 ggcccaggga tgggacctgc agtgggcgtg tggaacatat ggctcccct cgctcccagc
3121 tttcttcag ctggccagtg ctgctctgga gatttacaag cacaacgaag ccaggagggga
3181 cacaggaaaa gtggctgaca tcctttcac tctgccctc cagaactctt ggtctcaatt
3241 ccagacacca ccagcctta gctgacctct ggattctgat aggtcccagt gcaggctgag
3301 acagagggtt taactccagt ttgggactgc cataccatg aactgagccc agcccagggt
3361 aacgatctca tggaaacttc tctctcccca gttgctgcac tacatcaaga tacacacatg
3421 tgcatacact gtactatggg ctaaaaaaat acgtaccgct accgttcagc aagggcttgc

FIG. 6B



(SEQ ID NO:102 (Con't))

3481 cgagtcccg gccatttc tcatctaac ctgtgaggag gatgatgtca gcctttttac
3541 agatgaggga actgagactc aaggaagaaa caggagctgc ccaaggtcac ccagctggca
3601 aagcagcaaa tccagatcg gaacctgac tctgccccga gctctgagcc atctgcacta
3661 cccaagggaat gaatacagcg gtgggaggat gagatcttgg agaaacccta aaatttagaga
3721 atgtcatagc cagtagaggg cttagagttg atctgggcca gcctccttgt tttactgatg
3781 gagaaattga agcccagagg caggaaggga cctgcccagg gccttataac agagctggga
3841 tgcagtccca cactctgacc tcattccatt ctcttccat aaattctgca ctgtctctag
3901 actggactgg ttagatgtg ggatactcta aacagcagtg ccttcaagag aaaaagaatc
3961 agaactacga atcacttaaa agtaatgtaa gctactctgg gcacactgcc tatggggctcg
4021 ccctgctcca caaggagcca caaaaataat taaaataatt taatatccct tcccaagggt
4081 aaccagttaa gtaagctctt ggctaggtaa ctggactctt gttcacaaat agccagtggg
4141 aaaaggctgt agagcttctt ctggccacct gtttaatttg atcattccaa gacagaaaca
4201 tttcttagga agttcttctt agaattacc tgggtgcctt ccactgcta tcagagccct
4261 gtcctctgtc ctcatgtgg gtagagagca aatggttgct gcttcttca tcacaacct
4321 tcaagccta ttattaccag ctaagaaggga ttggttgact atgggccaga gccctgagc
4381 ctgctggtag aatggatgct gtacaggagg gtggggagggt agcaggcaga atgaggaag
4441 cccctttgag ctgcaacccc agctcctgtc ctgctgactc agacagctga ctgtggagct
4501 ccatgccctg ccagggccctg ctgcctcctg ccgctctgag ctctgaact tgggaaatgg
4561 agggccagag gcaaaggagg gtacctgaga caggaactga gtcaggatca acaggccaga
4621 gcgggcagga ggtatcaggc agcctggctc ccagatgcac ccctgagctc cagcagggga
4681 ggagtaggaa tgaaggggct tccttgccct tgctcatggc tatgaggagg gctgaacca
4741 ccaccaggtc ctctggctta agtggcggga agcaaatggt ccctccctgg actcaggctc
4801 caaagttcct gggcctgcct tcagggttcc cagtgtcctg ggaatccag ctttccccag
4861 gacttgggga agccccggct ggatgactag tacaatgaa ggcccctgag gtccaggac
4921 ctgctgaggt cacaggaata tcctagatca agcttgtcca acccacggcc cacaggctgc
4981 atgtggccca gaatggcctt gaatgcagcc caacacaaat tagtaaaactt tcttaaaaca
5041 ttatgagatt tttttgcaaa tttttttttt ttttttagct catcagttat tggtagtgtt
5101 ggtatatatt atgtgtggcc caagacaatt cttccaatgt ggccaggga agccaaaaga
5161 ttggacacgc ctgtcctaga tggagaggaa ggaggcagtg ctgagcacat ctggccattc

FIG. 6C



(SEQ ID NO:102 (Con't))

5221 atccatctgg agagagaagg ctatgggcaa actgcttcct ctcccctgta gacaccagc
5281 tgggaaggtc tggcctttgg taagtcctgg cttgggggtcc ttcctcattt cacagaaacct
5341 aactctatgt tagtgctttg tagtatatg ttgatcataa taaagttgac gggatttttt
5401 cacatgataa taatagtgt catctggccg ggcattggtgg cttatgccta taatttcagc
5461 actttggaag gctgaggcag gtggatcact tgagggtcagc tgttcgagac cagcctggcc
5521 aacatggtga aaccacatct ctacttaaaa aaaaaaaa taaaaaat agctgggtgt
5581 ggtggtgcac ccttgtaatc ccagctactc gggagggtga ggcaggagaa tcacttgaac
5641 ccaggagggtg gagttgcag tgagctgaga ttgtgccact aactccagc ctgggtgaca
5701 agagcgaaac tccgtctcaa aaaaaagaa aataataa ataatagttg ccattccattc
5761 tactgtgctt tccattaact cgtgtaatcc tcacaagtcc cattttatag ttacaggaac
5821 tgaggctcac agagcttaaa tcacttggcc aaggccaaa acagctataa gaattacatt
5881 taggcagtct gattccaaag atactagtct attctgtatc tcatagacaa acaatacata
5941 ttcacttttt ttgtgttgtt ttgttttgag acggagtctt gctctgtcac ccaggctgga
6001 gtgcagtggc gccatctcgg ctacttgcaa cgtccgcctc ccgggttcaa gcgattcttc
6061 tgcctcagcc tccgagtag ctgggactac aggcattgtgc caccatgccc ggctaatttt
6121 ttgtattttt agtagagaca gggttttcct gggttagcca gaatgggtctc gatctcctga
6181 ccttgtgato caccacctc agcctcccaa agtgcctgaga tgacaggcgt gagccaccgc
6241 gtccgacctt tattcactat ttataaattg gagagaaataa gaaaatcaaa agggccaggt
6301 gtagtgactc acacctgtaa tccagcact ttgggaagcc aaggcaggag gattgcttga
6361 acccagaagt tcgagaccag cctgggcaac atggtgagac cctgtctcta caaaaaatac
6421 aaaaattagc tgggcgttgt ggtgagcacc ttattcttag gaagctgagg caggaggatc
6481 acctgaggcc aaggagggtg agactgcagt gagctgtgat cataccactg tacttcagcc
6541 tggacatcag agtaagaccc tatctctaaa aaggaaaattg agaagaaaga aaatcaaaagg
6601 gaagcaaaat cactcactct cactacctca agataccctc tagaagttgg tatttttagtg
6661 tggttcctat tgttttctgt gtcagttctc tgatttgagc aaaatctttg ggacgtcaaa
6721 cttaaaatcc ctttacttc cttggaacc ctgtagcatt agccagaca tgccctact
6781 cctccttgtg gcaaagagaa ggcctcgtc ttggtcccc agagtcttg cctaagcctc
6841 cctccaggag ggaagatgag tgttcagaca ctcagagtag ctgggggaga cacaggcctg
6901 tgaaattatc ctggctcaac tattagggtcg gcagaatccc agtgaaggga gccctacctc
6961 tgagcccat ctaagcctttg gctatgggtg gggcagataa gcaggaatcc atccctatag

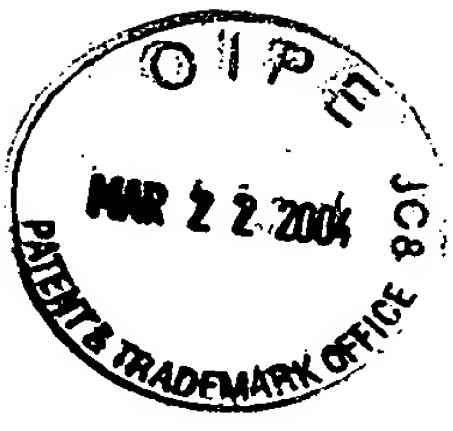
FIG. 6D



(SEQ ID NO:102 (Con't))

7021 gctcaatgcc aacaccctta ggtgaaactc ttgatgaaac ttgaggccag ggctccggca
7081 agcagggaaa gaacgttggc aacagagggtc tccatctctg aggactctgc caggggtcag
7141 agatggggca atggtcaaaa ggaagggaaca ggcaggcac agtggctcat gcccataatc
7201 ccagcacttt gggaggctga ggcaggagga tcgcttgagc ccaggagtct gagacctgcc
7261 tgggcaaatgt agtgagatct gctctctatt taataaaaaa aaaaaggaaa gaacaagtaa
7321 acttctgaga aacaggctgg gggaggcatc acgtagctgg aattgctgcc ccataaaaaa
7381 gaatggtatg tgtcactgcc acctcccttt ctacgtcttc tctctcccca ggttgctagc
7441 gtccccctgg gggatcaaac tggactgctt ccagcctca gacagagagc agtctgagtc
7501 aggcaggaaa gtgggacagc cggggagctg gacccaccc tctgtgagcc ccgctggtac
7561 ctgatggcat gtggcttggg gagggcaggt gacctggcgt ggagggccag agggtaaatc
7621 ctcaaaacaag tggcaacagg ccaccaactt gaaagggaat attgtgtagt gatgggaaat
7681 gtgtccaaca aacctactgg gtgactaat acaaaggctg ggctggagct tcagagggctg
7741 cttgttaaac acttcattaa gcggcactct gaaagctgcc acctgcgcac tctggggagct
7801 cagaggggac cctgaggggg aatgaggcct ggaggatgga accatcttca ggtagactga
7861 gaaggagcct ggatctcact tccaacaca gtctggagct cataggtcag aggcctcaat
7921 gggagaaaag ctaaaggaa ggtgtgcaga aaggagtctc agggaattgg tggctatgtg
7981 actttgagca aatctaccc ctctctgaga cttagtgttc ccactctat ggtcctgtgt
8041 gtgtcacaga gacatggtgg ggattaaatt cgatcgtgat atgaaagtgc ttgggaaact
8101 ccatggccct acctaaacat gagtatacct cacctgaacc aaggggggaa gttacctggc
8161 aggattagga acctatcct cctgaacctt tatgggctct gtcgaggctg aagcagccag
8221 gggctaaagc cagtccttag cccctggaag ggcactgtga aagtggatct gatttgagaa
8281 gccgtttcct gatgtgggca gccatgtgat gccagccccg acaagagggg ggcagcctgg
8341 agcctggaaa ggtgccagt ggtgtggggc ccacgccag atttctctg ctgactgttc
8401 tgatgattca cccccacatc ccagcctttt tacctttact gcagagccgg aaagggtgtg
8461 gggaaagagag gagaggagg gagggtctgg gccctgggcc cgtctctctc tcctccccac
8521 ccttctctgg gcctggccac ccagccaaa ggcaggccaa gagcaggaga gacacagagt
8581 ccggcatagg tcccaggcag cagttagccc gccgccgcc tgtgtgtccc cagagccatg
8641 gagagagcca gtctgatcca gaaggccaag ctggcagagc aggccgaacg ctatgaggac
8701 atggcagcct tcataaaagg cgccgtggag aaggcgagg agctctcctg cgaagagcga

FIG. 6E



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(SEQ ID NO:102 (Con't))

8761 aacctgctct cagtagccta taagaacgtg gtgggcggcc agaggctgc ctggagggtg
8821 ctgtccagta ttgagcagaa aagcaacgag gagggctcgg aggagaagg gcccaggtg
8881 cgtgagtacc gggagaaggt ggagactgag ctccaggcgg tgtgcgacac cgtgctgggc
8941 ctgctggaca gccacctcat caaggaggcc ggggacgccc agagccgggt ctctacctg
9001 aagatgaagg gtgactacta ccgctacctg gccgaggtgg ccaccggtga cgacaagaag
9061 cgcatcattg actcagcccc gtcagccctac caggaggcca tggacatcag caagaaggag
9121 atgccgccc ccaaccccat ccgcctgggc ctggccctga acttttccgt cttccactac
9181 gagatcgcca acagccccga ggaggccatc tctctggcca agaccacttt cgacgaggcc
9241 atggctgac tgcaacacct cagcaggac tcctacaaag acagcacctt catcatgcag
9301 ctgctgcgag acaacctgac actgtggac gccacaacg ccggggaaga ggggggcgag
9361 gctccccagg agccccagag ctgagtgtg ccgccaccg cccgcctcag cccctccag
9421 tccccaccc tgcgagagg actagtatgg ggtgggaggc ccacacctc tcccctaggc
9481 gctgttcttg ctccaaaggg ctccgtggag agggactggc agagctgagg ccacctgggg
9541 ctgggggatcc cactcttctt gcagctgttg agcgcaccta accactggtc atgccccac
9601 ccctgctctc cgcacccgct tcctcccag ccaggacca ggctacttct cccctcctct
9661 tgcctccctc ctgcccctgc tgcctctgat cgtaggaatt gaggagtgtc ccgcttctg
9721 gctgagaact ggacagtggc aggggctgga gatgggtgtg tgtgtgtgtg tgtgtgtgtg
9781 tgtgtgcgcg cgcgccagt ccaagaccgag actgagggaa agcatgtctg ctgggtgtga
9841 ccatgtttcc tctcaataaa gtccccctgt gacctcctc ctgtctctct tccagttctt
9901 ggcgatgggc tgggagtggg actggaatct gacttagaga ccctgacttt ggacctctga
9961 gttagggccc tgaactccct aggtggctca gtggcccgcg caaagactt tgagtcagg
10021 tgaggccggg gtcc

FIG. 6F



H.sapiens Wilms tumor (WT1) gene promoter. ACCESSION No. X74840 (SEQ ID NO:103)

```
1 agcttgacg cccagcccgg gccagccagg tacaggaggc cggactgcaa ccggttgctt
61 ccctcccgtc gcgcctggcc gtcccacgct gcgccgtcgc tgctgcctcc tggcgccctt
121 gggattttat acgcacctct gaaacacgct ccgctccggc ccccggttct tctccttgcc
181 taggggttgt ttcccaatag atactgactc cttagaaga tccaaaaacc aaaccaaaac
241 accccctacc cgcccctaac acctgctctg gggcgcgggg gctgccaaac agagactaga
301 cgaaggaggt cagatttagc gaantctctg agctcccaaa gattcgaaca ctaactcgcg
361 cccgtgggcc gatggaggtt ctccctactc cactccttgg tccccttaac tggcttccgc
421 ctccctggta atcactgagc aaccagaatg gtatcctcga ccaggggcac aggcagtgtc
481 cggcgggagt gctccaggag ttaccgcgct ctagccgggt ctgtatccaa accctcccct
541 tcacccctcc tccccttcc caagggtttt gggcgccagg atgctccggc cggaatatat gcagggtttg
601 ggcgtttgcc caagggtttt cttccctcct aaactagccg ctgttttccc ggcttaaccg
661 tagaagaatt agatatctct cactggaaag ggaactaag tgctgctgac tccaatttta
721 ggtagggcgc aaccgcttcc gcctggcgca aacctcacca agtaaacaaac tactagccga
781 tcgaaatacg cccggcttat aactggtgca actcccggcc acccaactga gggacgttcg
841 ctttcagtcc cgacctctgg aaccacaaa gggccacctc ttccccagt gacccaaga
901 tcatggccac tcccctaccc gacagttcta gaagcaagag ccagactcaa gggtgcaaaag
961 caagggtata cgcttctttg aagcttgact gagttcttcc tgcgctttcc tgaagtccc
1021 gccctcttgg agcctacctg cccctccctc caaacctc ttttagatta acaaccccat
1081 ctctactccc accgcattcg accctgcccg gactcactgc ttacctgaac ggactctcca
1141 gtgagacgag gctcccacac tggcgaaggc caagaagggg aggtgggtgc aggttgtgc
1201 cacaccggcc agctgagagc gcgtgttggg ttgaagagga ggggtgtctc gagagggacg
1261 ctccctcgga cccgccctca cccagctgc gagggcgccc ccaaggagca gcgcgcgctg
1321 cctggccggg cttgggctgc tgagtgaatg gagcggccga gcctcctggc tcctcctctt
1381 cccgcgcccg cgggccctc ttatttgagc ttggggaagc tgagggcagc caggcagctg
```

FIG. 7A



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(SEQ ID NO:103 Con't)

1441 gggtaaggag ttcaaggcag cgccacacc cgggggctct ccgcaaccg accgcctgtc
1501 cgctcccca ctcccgcgc tccctccac ctactcattc accaaccac ccaccagag
1561 ccgggacggc agcccaggcg cccgggccc tccacgtgtg tcccggagcc cccgctctcc
1621 tcttgctgca ggaccggct tgggtgccta cagcagccag agcagcaggg agtccgggac ccgggaggca
1681 gctccgggcc tctggggcaa gttaggcgc cctcagcaaa tgggctccga cgtgcgggac ctgaacgcgc
1741 tctggggcaa gttaggcgc cctcagcaaa tgggctccga cgtgcgggac tctccagggc cggaggagcc
1801 gcggggcgct cggtcttgag cgtcccctcc ctgggtggcg gcggcgggctg tgccctgcct gtgagcggcg
1861 tgctgcccgc cggtccggtg ggcgcgggca ccggctccgc tgggcccggg cgcttcggct tacgggtcgt
1921 cggcgcagtg ggcgcgggca ccggctccgc tgggcccggg cgccacccc cgcccgccg cctcactcct
1981 tgggcccggc cgcccgcca ggagccgagc tgggcccggc cgagaccgca cgagagcag tgcctgagcg
2041 tcatcaaa ccttactgt cacttttcc ggccagttca ctggcacagc cggagcctgt cgctacgggc
2101 ccttcaggcc tcctccgccc agccaggcgt catccggcca ggccaggatg ttccctaagc
2161 ccttcaggcc tcctccgccc agccaggcgt catccggcca ggccaggatg ttccctaagc
2221 cgccctacct gccagctgc gccagctgc agcccgctat tcgcaatcag ggtaagtagg
2281 ccggggagcg ccccta

FIG. 7B



Estrogen Receptor (ER): Homo sapiens estrogen receptor beta gene, promoter region
and partial cds
Accession Number AF191544 (SEQ ID NO:104)

```
1 actatagggc aCGCGtggtc GaCGgccCGg gctggtattg atagatgcat tttcttcacc
61 ctcacctatc tttttctgcc tggtggctta tggttgaaat tccttcata CGgtttccat
121 ttccagagat atcttggttaa caagtatata ccaccaaatg aagctgattt tttttttttt
181 ttttttttga gacagagtct CGctctgtCG ccaggctgg aatgcagtgg CGCGatcttg
241 gctcactgca acctCGcct cccatgttca agCGattctc ctgcctcagc ctctgagta
301 gctgggatta ctggcatgtg ccacCGCGtc cagccaattt ttgtatttt agtagagaCG
361 aggtttcacc atgttggtca ggctggtctc aaactcctga cctCGtgatc cacctgcctc
421 ggcctcccaa agtgctgaga ttataggtgt gagccaccat gcctggccat gaagctgatt
481 tttttaaaacc atcatttaac attttctcca taagggtggca aggaggaaga gcatatgggg
541 actgggtact ttgagagacc ccaggacagg agacagggag gctgagattg gcatgttgtc
601 tgctgcagtt atttgccagC Gacacactct ttcCGtcaa actaacttct ctgcctcaag
661 gacagggaga ctctgccttt caacctgaga gaaaccagg aacctcagctt taatgaaaaat
721 tggacttagg gtggggcagt ggagactttt cacagctatt gtttagctga tgaagcagat
781 gcttctccat ctttggagcc tgtcttcatt acctgtggac ctcatcttta tcaaccaga
841 gcacacttgC Gtctctctat ttgggctaaa caccaaacag ctgaggctgg tactgtaaaa
901 ctttccctcc aaatgcccc cctCGtcttc ctctattaga gatctggatc acaaccctca
961 aaaaccatgt cccttatgcc acctgagtag atggtttgat gattaatag gcacagatgt
1021 gacactggg ggtctcaca atggcctgtg ggtcacatgc tacttctct ttcattttca
1081 tcagcaacag ctgccttaa gccagttaag actgtggtcc tagtctCGca ccctggggct
1141 cctgctggg tgggtgagg gaaacccca ttaagctggg ggaactgggg ctgccaccag
1201 ggggCGCGag gggccttCGc CGagaagag ggtggggcag gtgcctccag CGgagaagg
1261 CGCGtgggc Ggaggcacag gtctcccCGg tgccacttca agtgagtCG aggaagtacc
1321 tgggatcttt gatctaaCGC Gaaaggcctt ccagtgacc tcttgagggc tgagaaccca
1381 ctccctccac ctctagtcca CGgctttgcc actccaggc CGagggttaC Gtttgctgct
1441 ggggatttga caaacccaaa gcctctctgg tttcaccact ggctccttag aatcagacat
1501 ctgttctgaa tgacacttat gtgagtcagg gctgaggac GtgcctCG aagtgtggc
1561 ccagactgg ctgtatcagt gtCGgcatcc ccaggacct ggttggaat gcatattctc
1621 aggccctact ccagacctct taaatctgag actgggggctg CGgggagCGc catctgtCG
```

FIG. 8A



1681 ccactatcct tgtgggtgga ccaggagtCG gttCGagggt gctcccactt agaggtcaCG
1741 CGCGgCGtCG ggCGttcctg agacCGtCGg gctccctggc tCGgtcaCGt gggctcaggc
1801 actactccc tctaccctcc tctCGgtcctt taaaaggaag aaggggctta tCGttaagtC
1861 Gcttgtgatc ttttcagttt ctccagctgc tggctttttg gacaccact ccccCGccag
1921 gaggcagttg caagCGCGga ggctgCGaga aataactgcc tcttgaaact tgcagggCGa
1981 agagcaggCG gCGagCGgtg ggcCGgggag ggaccacCG agctgCGaCG ggctctgggg
2041 ctgCGgggca gggctggCGc cCGgagcctg agctgcagga ggtgCGctCG ctttcctcaa
2101 caggtggCGg CGgggCGCGc gCGggagac ccccctaact gCGgggaaaag caCGtgtcCG
2161 Ctttttagag aaggcaaggc CGgtgtgttt atctgcaagc cattatactt gccaCGaat
2221 ctttgagaac attataatga cctttgtgcc tttcttgca agtgttttc tcagctgtta
2281 tctcaagada tCGatataaa aaactacca ttagcctta attctcctc ctcctacaac
2341 tgcagtcaat ccatcttacc cctggagcaC Ggtccatat acataccttc ctcctatgta
2401 gacagccacc atgaatatcc agccatgaca ttctatagcc ctgctgtgat gaattacagc
2461 attcccagca atgtcactaa cttggaagggt gggcc

FIG. 8B

Unmethylated 288 BP

G ggTGtttttg agatTGtTGg

FUM 21 BP AT 60 (SEQ ID NO:85)

TG agttgTGaTG ggtttttg

(SEQ ID NO:86)

ccaaaacc CATCAcaact CA

RUM 20 BP AT 58 (SEQ ID NO:87)

Methylated 181 BP

agagtaggCG gCGagCGt

FM 18 BP AT 60 (SEQ ID NO:88)

CGggaaaag taCGtgttCG t

(SEQ ID NO:89)

a CGaacaCGta cttttccCG

RM 20 BP AT 60 (SEQ ID NO:90)

FIG. 8C